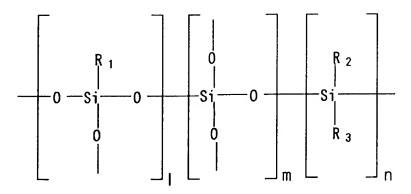
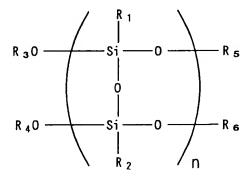
Claims

- 1.A sensor element comprising;
- a sensor substrate; and
- a sensing portion supported by the sensor substrate; wherein a resin film is provided between the sensor substrate and the sensing portion.
- 2. The sensor element according to claim 1, wherein the sensing portion has a microfine wiring pattern.
- 3. The sensor element according to claim 2, wherein the microfine wiring pattern comprises plural wiring patterns being adjacent eath other.
- 4. The sensor element according to claim 1, wherein the resin film is a cured film of a curing polymer selected from a silicone polymer, a polyimide polymer, a polyimide silicone polymer, a polyarylene ether polymer, a bisbenzocyclobutene polymer, a polyquinoline, a perfluorohydrocarbon, a fluorocarbon polymer and an aromatic hydrocarbon polymer.
- 5. The sensor element according to claim 4, wherein the curing polymer is a photo-curing polymer.
- 6. The sensor element according to claim 1, wherein the resin film is a cured film of the silicone polymer represented by the general formula (1);



wherein R_1 , R_2 and R_3 , which may be the same or different, each is an aryl group, hydrogen atom, an aliphatic alkyl group, hydroxyl group, a trialkylsilyl group or a functional group having an unsaturated bond; and 1, m and n are integers and at least 0; has a weight-average molecular weight of not less than 1,000.

7. The sensor element according to claim 1, wherein the resin film is a cured film of the silicone polymer represented by the general formula (2);



wherein R_1 and R_2 , which may be same or different, each is an aryl group, hydrogen atom, an aliphatic alkyl group or a functional group having an unsaturated bond; R_3 , R_4 , R_5 and R_6 , which may be same or different, each is hydrogen atom, an aryl group, an aliphatic alkyl group, a trialkylsilyl group or a

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functional group having an unsaturated bond; and n is an integer; and has a weight-average molecular weight of not less than 1,000.

- 8. The sensor element according to claim 4, wherein the resin film comprises layered film comprising plural layers and each of the layers comprises cured film of different curing polymer.
- 9. The sensor element according to claim 8, wherein each of the layered film comprises a cured film of curing polymer having different molecular weight.
- 10. The sensor element according to claim 9, wherein the layered film is composed of a cured film comprising a silicone polymer having a weight-average molecular weight of not less than 100,000 and a cured film comprising a silicone polymer having a weight-average molecular weight of not more than 100,000.
- 11. The sensor element according to claim 8, wherein the uppermost layer of the layered film comprising plural layers comprises a cured film of a photo-curing polymer.
- 12. The sensor element according to claim 1, wherein the sensor element is selected from a magnetoresistance sensor, an air flow sensor, an acceleration sensor, a pressure sensor, a yaw rate sensor or an image sensor.
- 13. A method of fabricating a sensor element, comprising a step of coating a solution of a thermosetting polymer on a

sensor substrate to form a curing polymer film, a step of heating the curing polymer film at temperatures which are not lower than a fusing temperature and are lower than a curing temperature of the thermosetting polymer, a step of heating thereof at the temperature of not lower than the curing temperature to form a cured resin film and a step of forming a desired sensing portion on the cured resin film.

14. The method of fabricating a sensor element according to claim 13, wherein the thermosetting polymer is selected from a silicone polymer, a polyimide polymer, a polyimide silicone polymer, a polyarylene ether polymer, a bisbenzocyclobutene polymer, a polyquinoline polymer, a perfluorohydrocarbon polymer, a fluorocarbon polymer or an aromatic hydrocarbon polymer.